

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
26 May 2005 (26.05.2005)

PCT

(10) International Publication Number
WO 2005/046333 A1

(51) International Patent Classification⁷: **A01N 63/02**,
37/06, 37/02 // (A01N 37/06, 37:06)

(21) International Application Number:
PCT/GB2005/000018

(22) International Filing Date: 6 January 2005 (06.01.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0400744.9 14 January 2004 (14.01.2004) GB

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(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,

MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

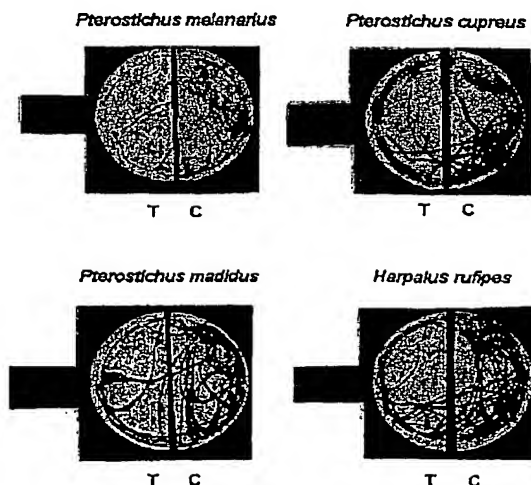
- with international search report
- with amended claims
- upon request of the applicant, before the expiration of the time limit referred to in Article 21(2)(a)

Date of publication of the amended claims: 14 July 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: TO INVESTIGATE THE POTENTIAL OF USING BEETLE ODOURS TO DETER SLUGS IN VINING PEAS

Photograph showing slug response to beetle extracts overnight using the arena test inside the petridishes



The control and test sector is denoted by C and T under each specimen

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(57) Abstract: In the UK slugs can be a major problem in vining peas. Their climbing and feeding habit on pea plants can often result in large numbers being picked up by the viners, causing contamination and possible rejection of the crop, consequently leaving the growers to meet the loss and face the costs. A likely answer, using the current interest in natural enemies as sources of potential chemical repellents, is now being studied by a PhD student at Cardiff University and hopefully this could lead to a new slug deterrent. It has been known for quite some time that slugs are reluctant to enter areas recently colonised by ground beetles, but it is only from an extensive series of laboratory experiments that it has now become clear that slugs respond to chemical secretions from the beetles pygidial glands - situated at the tip of the abdomen (see description figure 1). Normally discharged from the glands in response to attack by beetle predators, these secretions contain a cocktail of noxious substances - usually a mixture of acids and alkanes although the balance may vary from species to species (see description). That this defense mechanism also works to the beetles disadvantage in alerting its own potential prey was shown recently only at cardiff university (see description, Figures 2-5) as a significant change in the behaviour of the slugs when exposed to beetle extracts. Video recordings used to carry out these tests revealed a direct and rapid reaction on the part of the slugs when coming into contact with beetle extracts showing that the results are very encouraging (see description, page 1). The test also revealed that these slugs do not die during the course of this experiment. This must show that when slugs are exposed to beetle extracts there will be no side effects. The important chemicals have since been obtained, from commercial sources and tested to show its effect on deterring slugs from feeding on to growing plants and its effect on deterring slugs from climbing on to growing plants, under semi-field conditions. The findings conclude that beetle odours have the potential to develop into a new slug deterrent. Chemical companies will also receive the new slug deterrent as a potential source to stop and prevent slugs from entering into other crops currently for use in the UK.